1531
May 5, 1998

Dear Prospective Midshipman:

On behalf of the faculty at the Naval Academy, Welcome Aboard!

Congratulations on being selected to attend one of the finest institutions of higher education in the United States. We're pleased that you've chosen the Naval Academy and we know that you'll find your academic experience here to be challenging and rewarding. The Naval Academy's academic program is designed to provide you with a sound general education, to afford you the opportunity to pursue an area of interest within a major of your choice, and to prepare you for the naval service.

Several important academic events have been scheduled during Plebe Summer. There will be briefings on the academic program, placement tests, advising sessions, and computer training. The briefings and advising sessions will prepare you for the coming academic year and acquaint you with the academic program. The purpose of the tests is to place you in courses most appropriate to your academic background and give you an opportunity to earn credit for college-level work done elsewhere.

Shortly after Induction Day, you'll begin a sequence of placement and validation tests in the following subjects: Chemistry, Physics, Mathematics, Foreign Languages (French, German, Spanish, Russian, Japanese), Economics, and English. The particular tests that you take will depend on the information we have about your academic background. You'll also take some tests to help us assess your ability to learn various subjects. In some cases, your taking a test will be at your option; in other cases, everyone will be required to take the same test.

It is distinctly advantageous for you to gain validation credit for as many Naval Academy courses as you can. Validation permits you to satisfy graduation requirements and to increase the choices available to you. For example, validating one or more courses may allow you to take courses you could not otherwise take without overloading, make progress toward a second major, achieve a minor in a foreign language, reduce your academic load in one or more semesters, or avoid attending summer school should you encounter academic difficulty. More than half of your class will validate at least one course.

The validation and placement tests will be administered soon after Induction Day. Later in the summer, after the placement tests have been evaluated, you'll meet your plebe year academic adviser, who'll explain how and why you've been placed in your first courses. Your adviser will also introduce you to the academic routine and the essentials of time management and study skills. Shortly before the Brigade returns, you'll be issued your new computer and instructed in its use. Plebe summer will be an extraordinarily busy and exciting period for you. You'll have almost no time to prepare for the validation and placement tests after you arrive in Annapolis. While these tests are designed to verify your comprehension of fundamentals and are not exercises in memorization, your achieving validation credit will be enhanced if you review before coming to the Academy. I strongly advise you to study the subjects you hope to validate before Induction Day.

Although not mandatory, it will be helpful for you to have some familiarity with WINDOWS, a word processor, and a spread sheet program. The Class of 2002 will be using WORDPERFECT and QUATTRO PRO. If you don't have access to a computer or this software, don't be concerned. Instruction about the use of these tools will be provided at the Naval Academy.

Please read and respond to the enclosed material. The nine enclosures include a privacy act statement, six questionnaires, information about plebe year courses, and specifications for computers and calculators. Return the six questionnaires as soon as possible but certainly in time to arrive in Annapolis not later than 20 June. Use the enclosed pre-addressed envelope for this purpose. We'll use this information to evaluate your academic background and decide which tests you should take. Please note the Privacy Act Statement at enclosure (1). The entirety of this package is at the Naval Academy's web site: http://www.nadn.navy.mil/AcDean.

We look forward to your arrival at the Naval Academy.

FREDERIC I. DAVIS
Associate Dean for Academic Affairs

Enclosures:
(1) Privacy Act Statement
(2) Chemistry Questionnaire
(3) Physics Questionnaire
(4) Mathematics Questionnaire
(5) Languages Questionnaire
(6) English, History, Economics, and Political Science Questionnaire
(7) Computer Experience Survey
(8) Fourth Class Year Academic Program
(9) Information about Computers and Calculators

Copy to:
Division Directors
Department Chairs

PRIVACY ACT STATEMENT - VALIDATION PROGRAM QUESTIONNAIRES

Applicability: This Privacy Act Statement is applicable to the following questionnaires: Computers; Chemistry; Physics; Mathematics; Language Data Sheet; Economics, Political Science, English, and History.

Authority: 5 USC 301, 44 USC 3101.

Purpose: To obtain information necessary for preadmission evaluation of a prospective midshipman's current academic standing, progress, and potential.

Uses: To determine the appropriate academic course level for each prospective midshipman; to identify which prospective midshipmen desire and/or qualify for validation, achievement, or advanced placement tests, or qualify for validation credit for courses taken prior to admission.

Disclosure: Disclosure is voluntary. Failure to disclose the requested information may result in the placement of a prospective midshipman in an inappropriate academic course level, will result in nonconsideration of a prospective midshipman for validation, achievement, and advanced placement tests, and will preclude the granting of validation credit for courses taken prior to admission.

These questionnaires have been prepared by the Associate Dean for Academic Affairs, Dr. Frederic I. Davis (phone: 410-293-1586, email: fid@nadn.navy.mil) to whom inquiries should be addressed.

CHEMISTRY - Class of 2002

Midshipmen are required to take a sequence of two semesters of general chemistry during their first year at the Naval Academy. However, students who have completed a college-level course or an advanced placement course in chemistry may be able to validate (or waive) one or both semesters of the Naval Academy general chemistry requirement. Historically, about eight percent of an entering class will validate one semester of chemistry, and about one percent will validate both semesters.

If you have satisfactorily completed a course in chemistry at the college level and wish to validate all or part of the Naval Academy chemistry requirement, you may volunteer to take a validation examination which will be given shortly after Induction Day at the Academy. The topics covered on this examination include:

- metric system/unit analysis
- significant figures
- stoichiometry/mass relationships
- periodic table/periodic relationships
- nomenclature
- gases/ideal gas law
- waves and light
- quantum mechanics/quantum numbers/electron configurations
- ionic and covalent bonding/Lewis structures
- molecular geometry/VSEPR/hybridization
- intermolecular forces
- solids and liquids/phase diagrams
- solutions
- colligative properties

Students whose performance on this examination is satisfactory will be placed in a special one-semester chemistry course instead of the standard two-semester sequence. In addition, those students will be invited to take a second validation examination later in the summer to test their knowledge of other aspects of general chemistry, including equilibrium calculations, acid/base theory, kinetics, and electrochemistry. Students who pass this second examination will validate all of the Academy's chemistry requirement.

Complete and return this form **ONLY** if your have the necessary prerequisites and you intend to take the validation examination in Chemistry.

NOTE: You will need a basic scientific calculator for the chemistry examination. Bring one with you to the Academy and remember to bring it to the examination.

I wish to take the Chemistry validation examination this summer.

Name: _____, _____, _____
(last) (first) (m.i.)

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PHYSICS - Class of 2002

You are scheduled to begin your study of physics at the United States Naval Academy in your third semester. It is possible that you have taken one or more courses in physics at the college level and may not have to repeat those courses here. Note that the PSSC Course, Harvard Project Physics, and other similar courses in high school physics do not purport to be, nor are they accepted as, the equivalent of a course in general physics at the college level. Advanced placement courses, substantiated by Physics "C" advanced placement examinations are, however, considered to be at the college level.

If you have satisfactorily completed a course in physics at the college level, either in college or in high school, and substantiate this by your achievement on the validation examination given at the Naval Academy, you may validate the physics course here. If you wish to attempt this validation, you will be given the opportunity to take a validation examination in physics shortly after Induction Day at the Naval Academy.

This examination is entirely voluntary: you are not required to take it. You should not take it if you have not completed a college level course in physics. If you do wish to take the validation examination, you should take it at this time.

Complete and return this form **ONLY** if you have the necessary prerequisites and intend to take the validation examination in Physics.

I wish to take the Physics validation examination this summer.

Name: _____, _____, _____
(last) (first) (m.i.)

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MATHEMATICS - Class of 2002

All candidates must complete and return this form. Please print clearly.

Name: _____, _____, ____, _____
(last) (first) (m.i.) (soc.sec.no.)

1. In what year did you graduate from high school? _____

2. If you graduated BEFORE 1998, where did you attend school in the spring of 1998?
CIRCLE ONE:

not in school prep school community college college or university BOOST

NAPS foundation math NAPS intermediate math NAPS advanced math

3. Circle programming experience: NONE BASIC PASCAL FORTRAN C

4. If you've taken any of the following exams, please check. If you know your score, please list. **If you have taken either Calculus advanced placement test, you must have The College Board send us your score. Please do so as soon as possible.**

Advanced placement tests: Calculus AB ____ Calculus BC ____

American high school mathematics contests: AHSME ____ AIME ____

5. IMPORTANT! Please list the mathematics courses you have taken since the ninth grade. LIST YOUR MOST RECENT COURSE FIRST. If you run out of room, STOP. Provide:
a) descriptive title (such as *geometry* or *honors precalculus*)
b) letter grade (Convert to an *A,B,C,D,F* scale; guess if you have to.)
c) length (*Y* = year-long, *S* = semester, *Q* = quarter/trimester, *SS* = summer school)
d) academic year
e) name of school

Course Name	Grade (*ABCDF*)	Length	Year	School Name
			97/98	

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Enclosure (4)

You will take a mathematics placement examination soon after Induction Day. If you have taken calculus, you may validate one or more semesters. Please check the boxes next to the topics listed below that you have studied. The Mathematics Department uses this information to place you in a first course appropriate for you. Answer as accurately as you can. If you are unsure, seek assistance from an instructor.

Trigonometry and Plane Analytic Geometry Topics

[ ] Definitions of trigonometric functions: sin(A) = opposite / hypotenuse, etc.
[ ] Trigonometric functions of particular angles: tan (45°) = 1, etc.
[ ] Trigonometric relations: $\sin^2(A) + \cos^2(A) = 1$, $\sin(2A) = 2 \sin(A) \cos(A)$, etc.
[ ] Radian measure: $30^o = \pi/6$, etc.
[ ] Solving right triangles
[ ] Graphing trigonometric functions
[ ] Distance between two points
[ ] Equations of lines
[ ] Intersections of lines
[ ] Slopes of lines
[ ] Parallel and perpendicular lines
[ ] Symmetry,asymptotes,curve sketching
[ ] Equations: ellipses,parabolas,hyperbolas
[ ] Graphs: ellipses,parabolas,hyperbolas

Calculus I Topics

[ ] Slope, concavity, velocity, acceleration
[ ] Graphs of derivatives
[ ] Numerical estimates of derivatives
[ ] Derivatives of products and quotients
[ ] Derivatives: sin, cos, tan, arcsin, arctan
[ ] Chain rule
[ ] Derivatives: logs and exponentials
[ ] Implicit differentiation
[ ] Maxima and minima
[ ] Distance from velocity
[ ] Area under a curve
[ ] Fundamental Theorem of Calculus

Calculus II Topics

[ ] Volumes of solids of revolution
[ ] Integration by parts
[ ] Integration by substitution
[ ] Numerical approximations of integrals
[ ] Using integral tables
[ ] Improper integrals
[ ] Graphical solutions to differential equations
[ ] Euler's method: numerical solutions of differential equations
[ ] Separation of variables
[ ] Growth and decay problems
[ ] Taylor series
[ ] Complex numbers

Calculus III Topics

[ ] Vectors in 2 and 3 dimensions
[ ] Dot products and cross products
[ ] Equations of lines and planes
[ ] Cylinders, ellipsoids, hyperboloids
[ ] Cylindrical and spherical coordinates
[ ] Partial derivatives
[ ] Gradient vectors
[ ] Tangent planes
[ ] Double integrals
[ ] Triple integrals
[ ] Volume and mass
[ ] Vector fields and flows
[ ] Line integrals
[ ] Surface integrals
[ ] Divergence Theorem
[ ] Green's Theorem
[ ] Stokes's Theorem

_____ _____
(signature) (date)

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Enclosure (4)

Shortly after Induction Day, you'll be given a mathematics placement examination and a Calculus I validation test. The placement examination covers pre-calculus topics and will be used to determine if it is necessary to place you in a pre-calculus course. All plebes will take this placement examination. Those who have taken a course in Calculus I will then be given the Calculus I validation examination. Those who validate Calculus I will be invited to take the Calculus II validation examination later in the summer.

Since you will probably have no time to study for these examinations once you arrive at the Naval Academy, you should do all your preparation beforehand. Come to the Naval Academy prepared to take the mathematics examinations.

The Mathematics Department accepts **Advanced Placement** scores of 4 or 5 for validation if these scores are sent to us by the College Board. ***Please arrange to have your scores sent to us***. If you have taken the AB version of the AP test and scored a 4 or a 5, you will automatically validate Calculus I. If you have taken the BC version of the AP test and scored a 4 or a 5, you will automatically validate Calculus I and Calculus II. Again, be sure to have your AP test scores sent to us.

Enclosure (4)

Languages - Class of 2002

A special mark-sense questionnaire is used to elicit responses about the candidate's background in the languages tught at the Naval Academy. These are French, German, Japanese, Russian, and Spanish.

This page is NOT the questionnaire but is being used here as a placeholder.

ENGLISH, ECONOMICS, HISTORY,
AND POLITICAL SCIENCE - Class of 2002

All midshipmen are required to complete or validate a total of eight social sciences/humanities courses. These include two English courses, three history courses, a U.S. government course and two electives. Lower level courses in the humanities and social sciences may be validated by examination (except for Political Science) at the Naval Academy, as a result of good performance in Advanced Placement Program courses, or by transfer (except English) of credits earned at other colleges.

Name: _____ , _____ , ____
(last) (first) (m.i.)

ENGLISH: There is no transfer of credits for the required English courses. If you desire to validate one or both semesters of the required English courses, you must take a written examination administered by the English Department in July.

Complete the following if you intend to take the validation examination in English.

A.	College Courses	Institution or Auspices	Year Taken	Grade Received	Semester Credit Hours +
1.					
2.					
3.					
4.					
5.					

+ If quarters were used instead of semesters, please note.

B.	Advanced Placement Courses *	Institution or Auspices	Year Taken	Grade Received	AP Score (*1 - 5*)
1.					
2.					
3.					
4.					
5.					

* Do not list high school or preparatory school level courses unless they were taken under the Advanced Placement Examination Program and you actually took the CEEB examination. Please be sure that your test scores are sent to the Registrar at the Naval Academy.

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Enclosure (6)

HISTORY: Students may validate courses offered by the History Department as follows.

(1) Validation Exams: Validation exams for HH104 American Naval Heritage, HH205 *Western Cultural Heritage* (500 BC-1750 AD), HH206 *Western Civilization since 1750*, and HH241 *U.S. History* may be scheduled individually with the History Senior Academic Adviser during plebe summer or during the academic year.

(2) Advanced Placement Exams: A score of 5 on the Education Testing Service Advanced Placement exam in American History secures validation for HH241 (an elective course in the humanities). A score of 5 on the AP European History exam provides validation of HH206 (a required course). Please be sure that test scores have been sent to the Registrar at the Naval Academy.

(3) College Credits: The History Department accepts course work done at other colleges in lieu of courses that are offered at the Naval Academy. Credit is given for grades of *A*, *B*, or *C* earned at a 4-year institution, and *A* or *B* earned at a 2-year college. Transcripts certifying the course grade should be sent to the Registrar at the Naval Academy.

ECONOMICS: Students may validate courses offered by the Economics Department as follows.

(1) Validation Exam: A Validation Exam will be offered for *Introductory Economics* (FE210) in plebe summer. FE210 covers introductory microeconomics and macroeconomics. If you intend to take this examination, you should review before you arrive at the Academy. Validation examinations for other economics courses will be given upon petition to the department.

(2) Advanced Placement Exams: A total score of 8 or higher on the Educational Testing Service Advanced Placement Exams in Microeconomics and Macroeconomics secures validation for FE210. If you have taken only one of the AP Economics Examinations, you must take the validation exam administered during plebe summer. Please be sure AP test scores have been sent to the Registrar at the Naval Academy.

Presuming that you have the prerequisites, do you wish to take the validation examination in *Introductory Economics*? Yes _____ No _____ If you seek validation, list the economics courses you have taken.

1. _____ 2. _____

3. _____ 4. _____

POLITICAL SCIENCE: Students may validate courses offered by the Political Science Department as follows.

(1) Advanced Placement. A score of 4 or 5 on the Educational Testing Service Advanced Placement examination in American Government or Comparative Politics secures validation for FP130, *American Government* or FP322, *Comparative European Politics*. AP test scores should be sent to the Registrar at the Naval Academy.

(2) College Credit. The Political Science Department accepts course work done at other colleges in lieu of courses that are offered at the Naval Academy. Credit is given for grades of *A*, *B*, or *C* earned at a 4-year institution, and *A* or *B* earned at a 2-year college. Transcripts certifying the course grade should be sent to the Registrar at the Naval Academy.

Processed by	Economics:	English:
	History:	Political Science:

Enclosure (6)

COMPUTER EXPERIENCE SURVEY - Class of 2002

Please circle all responses that apply and return this form. Your identity is not required.

1. Do you have a personal computer in your home? a. Yes b. No

2. Do you frequently use a personal computer either at work or at school? a. Yes b. No

If you answered NO to BOTH questions 1 and 2, then please continue with question 7; otherwise continue with the next question.

3. When it comes to computers, do you consider yourself:
   a. very experienced
   b. somewhat experienced
   c. I only use them to play games
   d. not experienced at all

4. Which identifies the brand of personal computer with which you are most familiar?
   a. IBM or IBM Compatible (PC)
   b. Macintosh
   c. None of the above

5. Did this computer have a modem? a. Yes b. No c. Don't know

6. Did the computer have a CD ROM drive? a. Yes b. No c. Don't know

7. Have you ever had an introductory computer programming course in high school, prep school, summer school, or college?
   a. Yes, and we programmed in Pascal
   b. Yes, and we programmed in BASIC
   c. Yes, but we programmed in another language
   d. No, I have not had a computer programming course

8. Which describes your familiarity with a word processing program on a personal computer?
   a. I am very experienced in using word processing software
   b. I have limited experience in using word processing software
   c. I have never used a word processor on a personal computer

9. Which describes your familiarity with using a spreadsheet program on a personal computer?
   a. I am very experienced in using spreadsheet software
   b. I have limited experience in using spreadsheet software
   c. I have never used a spreadsheet on a personal computer

10. Which describes your familiarity with communications programs on a personal computer?
   a. I am very experienced in using communications software
   b. I have limited experience in using communications software
   c. I have never used communications software on a personal computer

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Enclosure (7)

Questions 11-13 concern your programming skills. If you have done ANY programming, then please answer these questions. If you have never learned or used a programming language, then go on to question 15.

11. In how many programming languages do you consider yourself proficient?
    a. None
    b. 1
    c. 2
    d. 3
    e. 4 or more

12. If you answered b - e on #11, in which programming language do you have the most experience?
    a. BASIC (any version)
    b. Pascal
    c. C or C++
    d. Java
    e. Other (Assembly, Lisp, etc.)

13. If you answered c - e on #11, which of the following do you also have experience in using? (Leave blank if you have not learned more than one language.)
    a. BASIC (any version)
    b. Pascal
    c. C or C++
    d. Java
    e. Other (Assembly, Lisp, etc.)

14. Did you take the Computer Science Advanced Placement examination?
    a. Yes and my score was a 1, 2
    b. Yes and my score was a 3
    c. Yes and my score was a 4
    d. Yes and my score was a 5
    e. No, I did not take this examination

15. Which kind of school did you attend last?
    a. College or university
    b. College preparatory school
    c. High school
    d. Home school
    e. Other

16. Have you visited the Naval Academy's web site? a. Yes b. No.

Fourth Class Year Academic Program - Class of 2002

100 level courses for the Class of 2002 are shown in the following table. Shown are the courses that most fourth classmen will take. It does not show the academic programs for fourth classmen who have validated one or more of the courses shown here. Midshipmen take five courses in each semester, one course from each of the darkly outlined boxes.

Fall Semester		Spring Semester	
NL102 Fundamentals of Naval Leadership	2-0-2	NS100 Fundamentals of Naval Science	3-2-4
FP130 * U.S. Gov't. & Constitutional Development	3-0-3	HH104 * American Naval Heritage	3-0-3
SM005 ** Precalculus Mathematics	4-0-4	SM121A Calculus I	4-1-4
SM121A Calculus I	4-1-4	SM122A Calculus II	4-1-4
SM121 Calculus I	4-0-4	SM122 Calculus II	4-0-4
SM131 Calculus I	3-0-3	SM122 Calculus II	4-0-4
SM161 Calculus I with Computers	5-0-5	SM162 Calculus II with Computers	5-0-5
HE101 *** Practical Writing	3-0-3	HE111 Rhetoric and Introduction to Literature I	3-0-3
HE111 Rhetoric and Introduction to Literature I	3-0-3	HE112 Rhetoric and Introduction to Literature II	3-0-3
SY100 **** Principles of Science	3-3-4	SC111 Foundations of Chemistry I	3-2-4
SC111 Foundations of Chemistry I	3-2-4	SC112 Foundations of Chemistry II	3-2-4
SC151 Modern Chemistry	3-2-4	To be determined with adviser	3/4
15/16/17	Semester Hour Credits		18/19

Enclosure (8)

* FP130 and HH104 may be taken in either semester. Half of the class takes FP130 in the fall and HH104 in the spring. The other half takes these courses in the reverse order.
** Midshipmen who begin their mathematics sequence with SM005 will take SM121A in the second semester and then take SM122 during the summer following fourth class year. In this case, SM005 may be used as a free elective.
*** Midshipmen who take HE101 must also complete HE111 and HE112. In this case, HE101 may be used as a humanities or social science elective.
**** Midshipmen who begin their science course sequence with SY100 will take SC111 in the second semester and then take SC112 during the summer following fourth class year. In this case, SY100 may be used as a free elective.

Detailed information about the academic program, including descriptions of majors and individual courses may be found at the web site http://www.nadn.navy.mil/AcDean.

MICROCOMPUTER - Class of 2002

The Class of 2002 will be issued a totally integrated computer system consisting of an Intel-based desktop microcomputer, factory loaded software, an accessory package, and on-site maintenance. Each system will be capable of supporting all academic requirements and function as a data communications device. For these reasons the issued system is much more than a desktop personal computer. Each system is optimized and pre-configured for compatibility with the Naval Academy's data communication's environment. All software is standardized, configured for USNA defaults, and loaded at the factory during system assembly. Many of the software applications are site-licensed, volume-licensed, educational shareware, or locally developed programs (not commercially available).

Each microcomputer will have, as a minimum, a Pentium II 350MHz central processor unit (CPU) running Microsoft Windows 95. Additionally, each system will have 64Mb of random access memory (RAM), 512Kb internal cache memory, 6 GB hard disk drive, 1.44Mb 3.5-inch floppy drive, 24-speed CD ROM drive, 32-bit sound support with headphones, 17-inch SVGA monitor, 4 Mb synchronous graphics RAM, 64-bit graphics accelerator, a TV tuner, mouse, ports (parallel, serial, mouse, and USB), and an ethernet card for connecting to the Naval Academy Data Network. On-site maintenance is provided at the Naval Academy from within Bancroft Hall. Each computer comes with an accessory package which contains items such as a mouse pad, surge protector and floppy disks.

A printer is not included with the computer package, but a high percentage of incoming freshmen either bring a printer from home or buy a printer shortly after computer issue. Public printers are available in each company area, but are in high-demand. Several printers are available for purchase at the U. S. Naval Academy Store on Parent's Weekend and many retail stores in the Annapolis area carry a variety of printers. When buying a printer, make sure it is PC-compatible and will connect to a standard parallel port. Also consider size (limited desk space), cost, maintenance and reliability, and supplies (paper, ink or toner, etc.).

Midshipmen are required to run both administrative and academic software. The administrative software is centered around an office suite and appropriate communications software such as HyperTerminal. It is anticipated that the Class of 2002's office suite will be Corel WordPerfect Suite 8 for Windows 95. It includes WordPerfect (word processor), Quattro Pro (spreadsheet), Presentations (presentations and graphics package), Netscape Navigator (web browser), and other support software. This software is preconfigured on a *master* hard disk and factory loaded on every midshipman's microcomputer during production. Required academic software is purchased in the book store and treated as a book issue.

To support midshipmen in using their new systems, a *Microcomputer Getting Started Guidebook* will be provided. This book is an Information Technology Services production and provides general information related to the issued system, software applications, and the Naval Academy Data Network.

CALCULATOR - Class of 2002

Each member of the Class of 2002 is required to have a graphing calculator that meets the following specifications.

1. Display
   1.1 Graphics with zoom and trace
   1.2 Display equations in "textbook" format
2. Symbolic capability
   2.1 Solve algebraic equations symbolically
   2.2 Symbolic differentiation and integration
3. Complex arithmetic
   3.1 Multiply, divide
   3.2 Roots (single)
4. Vector arithmetic/lists
   4.1 Sum of a list or sequence
   4.2 Cross products and dot products
   4.3 Rectangular-polar conversion
5. Special functions
   5.1 Binomial coefficients
   5.2 User defined functions
6. Programming
   6.1 Display text and prompt for variables
   6.2 Edit program after it is entered
   6.3 Exchange programs between calculators
7. Owner's manual.

Currently, the only calculator known to meet all these specifications is the Texas Instrument TI-92. (TheTI-92 Plus Module is not required.) The TI-89 model is an acceptable alternate to the TI-92.

The U.S. Naval Academy Store sells TI-92 calculators. The Midshipmen Store will replace defective calculators that have been bought at the Store and are under warranty.